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ABSTRACT

In 1982 the New Jersey Science Supervisors Association asked its members to submit samples of Professional Improvement Plans (PIPS) that they had developed for themselves as well as for their science teachers. Provided in this document, in chart format, are actual PIPS used by classroom teachers and science supervisors. The PIPS are divided into 12 categories: professional improvement, curriculum development, classroom management, student evaluation, community resources, career education, study skills, facilities, resources, methodology, safety, and supervision. No attempt was made to sort or categorize the PIPS by specific subject areas since many could be modified for any subject. Most PIPS contain three major components: objectives, activities, and evaluation. In each category, PIPS with all three components are listed first. Although most are related to secondary school, most PIPS could be adapted to the elementary level. An example of a PIP objective (under professional improvement) is to improve speech presentation in the classroom. Recording lessons at beginning/end of school year and recording at least three other lessons are suggested activities. Evaluation would be accomplished by analyzing recordings to discover occurences of vocal hesitation and to compare results of earlier and later recordings. The PIPS presented which seem outdated have been included for consideration with the application of modern technology, such as microcomputers. (JN)

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NEW JERSEY
SCIENCE SUPERVISORS ASSOCIATION

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and
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SCIENCE TEACHERS ASSOCIATION

PIPS

PROFESSIONAL IMPROVEMENT PLANS

IN SCIENCE

MARCH 1983

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PROFESSIONAL IMPROVEMENT PLANS IN SCIENCE

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INTRODUCTION

In 1982 the New Jersey Science Supervisors Association asked its members to submit samples of Professional Improvement Plans (PIPs) that they had developed for themselves as well as for their science teachers. This publication is a result of that effort. It contains actual PIPs that have been used by classroom teachers and science supervisors in recent years.

The following information should be helpful as you review the PIPs:

.... Any references that would identify a school district, school or individual have been deleted.

.... The PIPs are divided into 12 categories that are based on the samples received and are not meant to be all-inclusive.

.... No attempt has been made to sort the PIPs by specific subject area since many could be modified for any subject.

.... Most PIPs contain three major components: objectives, activities, and evaluation. This format is used for simplicity and consistency and is not meant to be the ideal. In each category, PIPs with all three components are listed first.

.... Most PIPs related to the secondary school but can be adapted to the elementary level.

.... Some PIPs may seem out-dated. They are included because the application of modern technology, such as microcomputers makes them worthy of consideration.

The NJSSA hopes that this publication will assist its members in working with their colleagues to develop PIPs that improve the quality of science education in New Jersey. In providing this service, no endorsement of any format or specific PIP is intended or implied. Members requiring additional information or assistance are encourage to contact the Association through any member of the Editorial Committee.

David A. Sousa, Ed.D.
Project Director
March 1983

NEW JERSEY SCIENCE SUPERVISORS ASSOCIATION

PROFESSIONAL IMPROVEMENT PLANS

CATEGORY # 1 - PROFESSIONAL IMPROVEMENT

OBJECTIVES	ACTIVITIES	EVALUATIONS
To use a self-assessment approach to improve methods of teaching science to eighth and ninth graders	1. Take the Science Teacher's Self-Assessment Inventory early in the school year 2. Employ a variety of clinical instruments to review classroom teaching methods	1. Discuss the results with the school system's science supervisor 2. Evaluate the plan in conjunction with the science supervisor and then together develop a teaching strategy for the school year ahead
To improve speech presentation in the classroom	1. Record (audio) at least three lessons and analyze each 2. Record (audio) three at the start of the school year and three near the end of the school year	1. Analyze the recordings to discover occurances of vocal hesitation 2. Compare the results of the earlier and later recordings
To increase knowledge of electronics and microcomputers	1. Take a graduate course at Seton Hall University entitled, "Electronics and Micro-Computers for Secondary School Teachers" 2. Assess the course as to its application to the science curriculum	1. Completion of the course 2. Written review of the course's application to the science curriculum and share the information with the department staff
To become involved in a variety of activities to assist in the transition to the high school	1. Integrate teaching methods with those of the Science Department 2. Become familiar with, and contribute different teaching activities for the Man and the Environment course 3. Implement and evaluate the biology units developed in the summer workshop, by working closely with other members of the Science Department	1. Review student success labs, units and worksheets for Man and the Environment 2. Conduct a self-evaluation at the end of the school year
To continue professional growth as a teacher to better serve the students as well as the school system	1. To create a student evaluation form to evaluate the subject areas taught 2. To continue to take graduate courses to enrich my scientific background	1. Construction of student evaluation form 2. Successful completion of the course

OBJECTIVES	ACTIVITIES	EVALUATIONS
To continue and broaden involvement in co-curricular activities	1. Assume the responsibilities of advisorship of the chemistry teams in the New Jersey Science League 2. Involvement with the district's Science Fair experience	1. Successful completion of involvement in the activities
To improve professionally in the subject areaa taught	1. To attend appropriate conventions and conferences 2. To finish graduate studies 3. To review available science journals 4. To visit science-related facilities 5. To establish a plan for visiting on-going science classrooms in the district and neighboring districts 6. To utilize the self-assessment and clinical instruments to review teaching methods	1. Oral reports of visitations will be given to classes 2. Possible field trips will be taken after visitation 3. Complete graduate studies 4. Keep a file of information from visitations and share with colleagues 5. Review results of the self-assessment instruments with the science supervisor
To continue professional growth	1. Attend various curriculum workshops, the NJ Science Convention and lectures, when available and applicable to course of study 2. Attend classes at accredited institutions dealing with relevant topics of study 3. Maintain and possibly upgrade membership in various professional organizations (NJSTA, NSTA, Cousteau Society, NJ Environmental Association, etc.) 4. Explore various certification programs available to increase effectiveness as a teacher 5. Maintain a professional reference library at home and in the classroom	1. Submit transcripts to the Personnel Office of courses successfully completed 2. Keep on-going file of lectures and conventions attended
To continue to improve professional background in the educational field in order to meet the diversified needs of students	1. Attend educational conferences such as NJ Science Convention and the NJEA Convention 2. Continue to enroll in graduate level courses in the field of education 3. Continue membership in professional organizations 4. Incorporate materials from the graduate courses into the science programs. (For example, to use brainstorming, divergent thinking, and problem solving activities to develop good peer interaction	1. Performance of the mentioned activities

OBJECTIVES	ACTIVITIES	EVALUATIONS
To maintain membership in professional organizations in order to enhance teaching techniques and science background	1. Renew membership in AAPT 2. Renew membership in NSTA and NJSTA 3. Regular reading of "The Science Teacher" and "The Physics Teacher" 4. Attendance at the NJ Science Convention and other conferences	1. Implementation of accumulated ideas into the physics curriculum by way of readings, labs, quizzes, and other techniques 2. Membership in AAPT, NSTA, and NJSTA 3. Keep a log of pertinent articles 4. Share ideas with department members
To continue professional development	1. To complete the next training level (MA + 32) 2. To attend relevant workshops and conventions 3. To continue to take courses toward a certification in supervision 4. To keep abreast of the latest developments in teaching area by reading professional journals and periodicals 5. To continue to participate in professional science organizations 6. To share learned techniques with colleagues	1. Attend Montclair State College and submit of copies of transcripts 2. Participate in workshops and conventions 3. Share informally and formally information
To become aware of the latest in science and chemistry teaching techniques and materials	1. Attend the NJ Science Convention 2. Attend American Chemical Society meetings when appropriate 3. Read current journals containing science teaching and chemistry teaching information	1. Keep a record of all meetings, conferences, and lectures attended 2. Keep a record of articles read
To continue professional development	1. Continue with courses towards a MS degree 2. Keep abreast of the latest developments in subject by reading journals, and periodicals published by professional organizations 3. Share techniques and materials with colleagues	1. Attendance at Montclair State College 2. Participation in formal and informal meetings in order to share any new developments 3. Continue membership in organizations already joined and staying up-to-date in the field 4. Maintaining a log of articles read and meetings attended

NEW JERSEY SCIENCE SUPERVISORS ASSOCIATION

PROFESSIONAL IMPROVEMENT PLANS

CATEGORY #2 - CURRICULUM DEVELOPMENT

OBJECTIVES	ACTIVITIES	EVALUATIONS
To develop a computer science program through the mathematics curriculum that will support inter-disciplinary use of the computer facility in the new high school building	Hold five in-service workshops which will be open to the entire staff	The program will be evaluated by the extent of teacher participation in the workshops
To include environmental awareness as an integral part of the biology and IPS curricula	1. The students will write a short review of a minimum of one current events article a month 2. Students will be advised of media events related to environmental issues, and asked to discuss them on a voluntary basis 3. Where appropriate, students will include in their notes curriculum-related environmental information 4. Student mini-grants will be encouraged dealing with environmental issues 5. Student Science Fair projects will be encouraged	1. Student notebooks will be checked Appropriate test questions will be administered and graded 3. Articles handed in will be graded 4. Knowledge of media events will be evaluated through class discussions 5. Completed science projects will be evaluated
To contribute to the team approach for planning in the seventh grade program	1. To plan with the members of the team the integration of science into the total scheme of the seventh grade program 2. Standardize classroom procedures with the other team members 3. Coordinate scientific concepts with the other 7th grade disciplines	1. Assess the impact of the fact that more knowledge about each student will be available to examine the students interaction in the group 2. Assess the importance of the team approach as it applies to middle school education
To continue the implementation of the Crustal Evolution Education Program labs into the existing Earth Science lab program	1. Student participation in the completion of each lab	1. Evaluation of written student lab report 2. Student testing 3. Observation of students performance during lab

OBJECTIVES	ACTIVITIES	EVALUATIONS
To meet the diversified needs of the academically gifted and talented student	1. Encourage student involvement in projects which utilize the special talents and interests such as the Science Fair 2. Provide in class time for independent research of a required topic 3. Place a special emphasis on individual study, graphing skills, orderly debating and researching 4. Provide a variety of open-ended experiences which will serve to introduce or culminate a specific area of study	1. Teacher evaluation of homework, class participation, unit tests, etc. 2. Teacher evaluation of student projects
To encourage greater student participation in extra-curricular science activities	1. Suggest which marking period projects might be developed into Science Fair projects, and assist any interested students 2. Display posters and encourage participation in the Science Fair 3. Students will design an experiment solving a biological problem of their own choosing. These proposed experiments may be further developed into Science Fair projects	1. Keep records of on-going projects 2. Include as part of a student grade participation in the Science Fair (experiment)
To develop and establish a reasonable lab program for the A.P. Physics course	1. Survey college lab manuals for suitable experiments 2. Survey affordable equipment 3. Survey existing equipment 4. Survey appropriate publications 5. Perform a reasonable number of labs which are suited to our A.P. program and equipment limitations	1. Number of labs performed during the next year 2. Additional number of labs planned for the following years
To establish a visual aide series to coincide with subject material in both chemistry and physics classes	1. Compile a set of appropriate acetates to enhance the presentation of unit materials (i.e. demonstrating graphing techniques) 2. Use the overhead projector as a means of laboratory instruction (i.e. demonstrating format for lab reports) 3. Incorporate a felt board into classroom method to further illustrate and explain subject material	

OBJECTIVES	ACTIVITIES	EVALUATIONS
To refine and extend the materials used in preparing units for the 7th grade science program	1. Prepare and implement new lab activities for the 7th grade to complement the curriculum 2. Increase the number of student centered activities in the classroom 3. Utilize the materials developed at the workshop for students with special needs 4. Assess the level and depth of each major unit to provide for more effective allocation of time	1. Assess class participation as it relates to the understanding of subject matter 2. Assess homework, tests, quizzes and the final exam as they apply to the impact of the new materials developed
To incorporate the newly revised biology units into the science curriculum	1. Coordinate the revised units with the current biology text 2. Organize supplemental material for the units 3. Develop and organize laboratory activities that compliment the units	1. Collect feedback on the revised units from colleagues and students 2. Evaluation of students' lab reports, and lab related test questions
Development of PSSC course and related activities	1. Reading in text 2. Use of guided study problems and other developmental activities 3. Emphasis on development of high quality Science Fair projects 4. Maintaining and enriching lab program where practical and appropriate	1. Student performance on tests 2. Student interest as reflected in participation in discussion, labs, and development of Science Fair projects 3. Student performance on final exams
To complete the development of the chemistry learning units	1. Complete the writing of Units 13 and 14, "Electrochemistry" respectively 2. Write quizzes for various sections of each unit 3. Write mastery unit tests for each unit 4. Compelte the listing and writing of the supplementary materials for each unit 5. Evaluate the program learning units at the end of the year and determine if revisions are necessary	1. Publication of the remaining units 2. Student success and comments on the various evaluative devices used in the units 3. Observation of student enthusiasm for the materials in each unit 4. Discussion with other chemistry teachers and students to determine what did and did not "work" in the units
To integrate the PET computer into the chemistry program	1. Expose students to prepared materials for the PET computer 2. Assist students in developing chemistry simulations which will be shared with the rest of the class	1. Evaluate students use of the computer 2. Review student produced programs

OBJECTIVES	ACTIVITIES	EVALUATIONS
To develop supplementary activities and materials for chemistry students which would reinforce concepts presently studied in the course objectives, and give them additional enrichment experiences not usually offered in the curriculum	1. Develop separate bibliographies which could be used by students in both the first year and Advanced Placement courses for additional readings on various chemical concepts 2. Set up materials and equipment for additional laboratory experiments which can be used by the AP students enrichment experience in particular concept areas 3. Assist in the development of individual projects in the AP chemistry course 4. Coordinate and supervise the chemistry teams in the New Jersey Science League	1. Observation of student enthusiasm for lab work 2. Publication of first year and AP reading lists 3. Success of participation in the Science League 4. Evaluation of individual research projects
To successfully implement the AP physics course	1. Coordination of calculus topics and problems in conjunction with the calculus instructor 2. Choosing labs and lab equipment relevant to the course 3. Attendance at the AP conference to keep informed on curriculum materials, developments and equipment 4. Regular assignment of spiral-type problems resembling those found on the AP exam	1. Homework results 2. Test results 3. Student performance on the AP exam 4. Introduction of labs in the coming year
To investigate mini-grant and/or Science Fair opportunities in order to continue to provide additional learning situations in science outside of the regular classroom	1. Set up an "area of research" station in the room for students who wish to pursue outside scientific work 2. Work after school with such students (if needed) 3. Showcase such work by the use of mini-grants and/or the yearly Science Fair	1. Teacher observation of student response to this objective 2. Set up a log (folder) to monitor the progress of each student utilizing the science research center
To expand students' understanding of the diversity that exists in both the plant and animal kingdoms	1. Student will construct wildlife profiles (range, dist., breeding habits, etc.) from various readings 2. Students will make a leaf collection of deciduous trees found in their town 3. Students will make an insect collection displaying at least twenty insects belonging to at least five different orders 4. Students will make use of TV media	1. Observations of students' performance in class 2. Results of collections 3. Display of collections

OBJECTIVES	ACTIVITIES	EVALUATIONS
To develop a program in science to meet the needs of the 7th grade resource room students	1. Selection of materials and laboratory experiences from various sources suitable for the student and in keeping with the 7th grade curriculum 2. Integrate remedial reading and math with the science program 3. Provide abundant opportunities for hands on experimentation 4. Work in close association with fellow teacher (name) in the formation of this program 5. When possible (due to scheduling problems) meet with the resource students for science encounters	1. On-going evaluation with _____ (name of fellow teacher) 2. Observation of students' performance in class 3. Discussion with Supervisor of Science
To continue the program initiated last year on the moon rocks	1. Follow-up with NASA in Houston on previously submitted paperwork for delivery of moon rocks 2. Schedule and carry out student activities with moon samples in the classroom 3. Expand program to include other science classes 4. Expand program to include near-by elementary schools	1. Student involvement, interest, and excitement in planned activities 2. Student questions - quality and quantity 3. Feedback from other educators involved in program
To supplement the Biology Curriculum to cover more of the standard biological concepts	1. Utilize some of the study units that have been newly revised at a recent summer workshop 2. Assign more reading homework outside the normal stressed areas 3. Opportunities for students to master topics other than the ones taught in class 4. Explore the possibility of research papers by students in the standard areas	1. Student results on tests in the standard areas of Biology 2. Evaluation of the effectiveness of the revised curriculum units
To continue to work on curricula for special education students as developed in a summer workshop	1. Continue to work in close association with fellow teachers in implementing the program developed at a summer workshop 2. Attend meetings with other 7th and 8th grade science teachers to assist them in implementing the program	1. On-going evaluation with fellow teachers 2. Observation of students' performance in class 3. Discussion with Supervisor of Science

OBJECTIVES	ACTIVITIES	EVALUATIONS
To preview and evaluate new AVA software and to reassess present materials for biology and IIS	1. Preview new materials for appropriate subject matter content 2. Select new materials according to student ability and level of difficulty 3. Divide present materials into groups of higher and lower degrees of sophistication 4. Integrate materials into the programs at the appropriate level	1. Student discussion and opinion of all AVA materials used in class 2. Quizzes on content of AVA materials to show impact; testing for concepts and facts retained by the student 3. Personal log of evaluations of materials used
To develop and prepare "hands-on" activities and materials in order to implement and enrich the 8th grade curriculum	1. Seek out magazines, library sources and other textbooks, etc. as sources of additional activities 2. Prepare materials which can be used in the classroom 3. Prepare packets (Ex. weather maps, rock kits, etc.) to assist instruction by increasing the number of "hands-on" activities 4. Invite members of local and professional communities into the classroom to lend their expertise towards our activities 5. Use frequent quizzes as an activity to measure retention	1. Teacher observation of variety of sources of materials 2. Teacher evaluation of effectiveness of the materials prepared in implementing and enriching the curriculum 3. Teacher evaluation of student interest in using additional "hands-on" materials 4. Written assignments by pupils to evaluate the effect of classroom visits 5. Teacher analysis of test scores to measure the effectiveness of frequent quizzes
To integrate and evaluate the revised Earth Science textbook into the existing Earth Science curriculum	1. Develop teacher-made worksheets 2. Quiz question sessions on selected reading assignments 3. Developing and selecting lab activities which will link text material to teacher presentations	1. Analysis of worksheets 2. To develop a self- evaluation form to allow student feedback in such areas as lab activities, revised textbook, etc.
To survey the 8th grade science programs to determine where the mini-computer could be incorporated	1. To review the curriculum and select areas of study that would lend themselves to computer programming 2. To survey existing programs in the selected areas for possible use 3. If any program is selected; devise a lesson plan for its use	1. Assessment of the number and type of programs developed with the Supervisor of Science
To revise the present course outlines for Honors Biology, Ecology, and Field Biology	1. Examine the existing courses outlines for Honors Biology, Ecology and Field Biology 2. Incorporate recent findings from scientific research and current trends in science education into the course outlines where appropriate	1. Completed course outline for each course

OBJECTIVES	ACTIVITIES	EVALUATIONS
To explore the use of microcomputers in the area of biology	1. Investigate the computer's ability to graph concepts such as population growth curves 2. Investigate the computer's ability to convert data from the English to the metric system 3. Investigate the computer's ability to store and recall Mendelian ratios used in genetics prediction problems	1. Observation of student utilization of microcomputers in biological applications
To explore the application of small computer technology to various concepts in the chemistry curriculum, particularly in the Advanced Placement chemistry course	1. Involve students with prepared software for the PET computer 2. Assist interested and qualified students generate programs for various chemical simulations. These would be used by both the programmer and the other members of the computer course	1. Observe and "run" student prepared programs 2. Evaluate student participation in programs prepared 3. Observe student enthusiasm for the PET computers
To assist student in designing an embryology laboratory manual	1. Assist the student to conduct appropriate research activities to gather information 2. Provide the student with a variety of resources 3. Teach the student techniques for stainings, microscopic slide mounting and photography 4. Assist the student to proofread and edit the final draft	1. Completion of an embryology laboratory manual
To develop a science club	1. Students will assume the responsibilities of care and maintenance of biological organisms 2. Students will go on three science career trips 3. Students will visit a pet store 4. Students will become actively involved in environmental issues through letter writing, petitioning governmental agencies and group discussions 5. Students will visit a science department at a college	1. Participation of members in projects 2. Successful completion of trips
To produce a notebook for the physics course	1. The notebook will contain detailed daily plans, worksheets, behavioral objectives, transparencies, tests, quizzes, laboratory activities and solutions to homework problems 2. The materials will be organized on a chronological basis	1. Production of a completed notebook

OBJECTIVES	ACTIVITIES	EVALUATIONS
To increase understanding and application of laser technology in the classroom	1. The district shall provide participation in the NJ Science Convention in October, in which laser use in the classroom will be presented 2. A new laser and all curriculum materials associated with our model shall be available in the science resource room for use by the teacher when necessary. Department service time can be used in part for this function 3. A maximum of $50 will be available for the purchase of appropriate supplements or library materials on laser use	1. The teacher shall demonstrate laser use and possible classroom applications to other teachers in the department 2. The laser shall be used as a supplement to the physics unit on optics this year
To reorganize and update materials for the BSCS biology course	1. Update and list all AV materials suitable for each chapter 2. Review and update proficiencies 3. Review and reorganize final exams particularly with regards to proficiencies 4. Establish reasonable timeline for the course in consultation with other staff 5. If time is provided in schedule, meet with team on a weekly basis 6. Establish master file and/or update course of study notebook for BSCS	1. Completion of master file and/or updated course of study 2. Completion of listing of AV materials 3. Reorganized final exam
To work with the administration and team members to increase the effectiveness of the cluster schedule in 7th grade	1. To utilize team meetings to support and complement the major subject areas by coordination of programs and curricula 2. To work with the counselors and other supportive staff to learn and meet the individual needs of each child on the team 3. To use the cluster schedule to discuss the correlation of homework, long term projects and testing 4. To share with team members information that will help to implement the program 5. To use any and all resources derived from the cluster schedule to assist the 7th graders in their transition from elementary to junior high school	1. Discussion with the principal and the assistant principal 2. Discussion with the science supervisor 3. Assessment of the extent to which the 7th grade students have adjusted to the junior high school environment

OBJECTIVES	ACTIVITIES	EVALUATIONS
To become familiar with the 7th and 8th grade textbooks and to adapt them to the curriculum	1. Design detailed chaper lesson plans to coincide with both texts 2. Stress safety in performing laboratory lessons 3. Design tests geared to the level of each class using text and plans as a guide 4. Modify lab lessons so they are easily understood by all students 5. Assign homework that is text oriented but reflecting lesson taught or to be taught	1. Determine if homework assignments are done correctly and understood by collecting, recording and returning to student 2. Grade and review tests to determine if work is being absorbed and understood 3. Eliminate poor questions from tests 4. Grade and evaluate lab lessons as part of the notebook 5. Observation of students at work to determine if safety rules are being followed
To integrate the 7th grade science curriculum with the newly adopted 7th grade textbook and to assess the value of the text as it relates to student achievement	1. Develop and prepare appropriate homework and classwork materials correlating the new text with the curriculum guide 2. Structure the lab format with curriculum text correlation in mind 3. Assess the need for, and coordinate within the program appropriate audio-visual presentations 4. Coordination and preparation of pertinent and appropriate materials within the science program	1. Include questions on tests and quizzes more closely related and correlated to the new text and the curriculum guide 2. Daily review and assessment of all work assigned including class, home and laboratory activities 3. Assess individual pupil performance on the final test 4. Assess pupil performance in daily class discussions 5. Assess student achievement related to all areas of newly developed teaching materials
To continue to gain a comprehensive view of other high school science courses in our own school and to explore what other districts are doing	1. Visit other school districts, either through professional visitation or MIddle States Evaluation Team 2. Attend the NJ Science Convention 3. Observe other teachers in the department and discuss their curriculum offerings	1. Information gathered will be discussed with the department chairman during the evaluation conference
To reorganize the chemistry technology course of study	1. Delete outdated and/or dangerous laboratory experiences 2. Add eight new lab exercises more relevant 3. Develop new filing system involving chronological file of all worksheets, tests, and ideas 4. Develop a new unit on drug chemistry 5. Prepare a notebook of audio-visual resources, field trips and guest lecturers for the course	1. Completion of filing system 2. Completion of revised course of study 3. Completed notebook

OBJECTIVES	ACTIVITIES	EVALUATIONS
To complete the task of identifying proficiencies for chemistry and lab procedures	1. Identify those proficiencies most appropriate to to chemistry and lab procedures 2. Review proficiences with appropriate fellow staff members 3. Communicate proficiencies to students	1. Examination of proficiencies by department chairman upon completion
To revise the present course outline for the chemical technology course	1. The outline will be written in the form of specific behavioral objectives and laboratory exercises for each unit of course 2. The lesson plans, class notes, and laboratory exercises from the previous two years will be used as a basis for the revision	1. Completion of a revised course outline
To identify "gifted students" and provide an "open ended" science curriculum for them		
To develop a set of student performance objectives (while making lesson objectives) for the course which could be used to improve instruction and assessable achievement		
To incorporate into Earth Science classes, social science issues, (Ecology, pollution, conservation, etc.) so that students will devleop a greater interest and appreciation for their environment		
To concentrate on the development of Marine Biology Laboratory Exercises (A new text is being used and the labs need to be better correlated with classroom instruction).		

OBJECTIVES	ACTIVITIES	EVALUATIONS
To humanize genetics with critical thinking concepts and make it more of a social science unit		
To integrate Health Occupation Students of America (HOSA) aims into the health course to provide greater total student development		

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PROFESSIONAL IMPROVEMENT PLANS

CATEGORY #3 - CLASSROOM MANAGEMENT

OBJECTIVES	ACTIVITIES	EVALUATIONS
To develop a positive learning atmosphere for students	1. Plan lessons that are fun as well as instructional 2. Make lessons as relevant as possible to the lives of the students 3. Display a respect for and interest in students' opinions and ideas 4. Be flexible in all matters 5. Learn from the students 6. Make all learning postive by over-emphasizing the good and playing down the bad	1. Observation of students' reactions to the teacher as a person and as a teacher 2. Feedback from other teachers 3. Assessment by supervisors 4. Performance on tests and quizzes
To develop classroom management techniques which will increase the academic and personal responsiblilities of students	1. Explanation and distribution of revised grading policy with pupil participation clearly outlined 2. Develop guidelines for appropriate student behavior and attitude specific to physics 3. To continue parental contacts relating to student achievement as needed	1. Evaluation will be determined by a comparison of of student evaluations in physics from last year to this year
To make science laboratory experiences as meaningful and efficient as possible	1. State to students the ground rules for laboratory work, stressing safety and particular need for co-operation due to environment 2. Initiate a conference with individual students as a problem occurs, and escalate if necessary to parents, guidance counselor, and administration	1. Evaluation of productiveness of labs, such as quantity of class material covered for year 2. Success of students (lab grades) 3. Attitude of students toward the class, as well as science in general

NEW JERSEY SCIENCE SUPERVISORS ASSOCIATION

PROFESSIONAL IMPROVEMENT PLANS

CATEGORY #4 - STUDENT EVALUATION

OBJECTIVES	ACTIVITIES	EVALUATIONS
To develop a diagnostic test (Pre and Post) for use with specific biology electives	1. Develop test questions with references to the course objectives 2. Tests typed, duplicated, collated and filed	1. Development of pre and post test 2. Item analysis of both pre and post test for use in determining pupil progress
To devise techniques to accommodate the broader range of student abilities who have enrolled in IPS	1. To identify difficult curriculum areas 2. To identify the student with the lower ability 3. To encourage these students especially to seek individual extra help 4. To assist these students to a greater extent during the labs 5. To give more pre-lab quizzes (on lab procedures)	1. Enrollment for next year 2. Comparison of drop-out rate with past year's record 3. Evaluation of grade distribution
To analyze test construction and evaluate this tool in the educational process	1. To construct tests which can evaluate how much students have learned and which are appropriate for the reading and ability level of the student 2. To make tests spiral or sequential in subject matter to show students that learning is a continual process 3. To vary the type of questions on tests in order to expose students to developing a variety of testing skills	1. Analyze student results on various types of test 2. To see the spiral effects of testing on the learning process by analysis of test scores

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PROFESSIONAL IMPROVEMENT PLANS

CATEGORY #5 - COMMUNITY RESOURCES

OBJECTIVES	ACTIVITIES	EVALUATIONS
To promote greater use of the community resources by the department	1. Encourage the use of speakers from near by colleges in the regular classes 2. Arrange for the media center's taping equipment to record some of the many science-oriented shows which have direct application to school work 3. Stimulate the formation of a club program in which those students who need help with projects or want more science experiences can get help and guidance	1. Inception of a Science Club 2. Cataloging of video tapes related to the science program 3. Contacts with speakers
To make further use of the school grounds for ecological field trips	1. Do a quadrant survey of the pond eco-system 2. Use immediate foliated area surrounding the parking lot for a tree, shrub, and micro-eco-system survey 3. Use various dichotomous keys to identify the plant, animal, and micro-organisms found in the above two areas	1. Surveys completed by students 2. Lab reports done on samples which were collected by the students during the surveys 3. Objective test to demonstrate the students knowledge of the use of dichotomous keys 4. Completion of the field trips
To provide students with various field trip opportunities to serve as an enrichment for topics and concepts discussed in class	1. Conduct a 7th grade trip to Franklin Institute in Philadelphia, Pa. to augment topics discussed in class in the physical science curriculum 2. Conduct a 7th grade trip to a nuclear power plant or other energy producing facility to augment the unit of energy in the physical science curriculum 3. Conduct an 8th grade trip to Poricy Brook State Park in Middletown, N.J. for a Cretacious Period fossil hunt to augment the unit on paleontology in the Earth Science curriculum	1. Student reports on certain topics or exhibits which are of interest to the students during the trips 2. Class discussion of trip experiences 3. Examination of fossils found during the fossil hunt (8th grade)
To conduct one sicence curriculum related field trip	1. Review the district's "Suggested Science Field Trips" list and possible additional field trips 2. Meet with the science supervisor to discuss field trip options and select an appropriate field trip	1. Complete all pre and post field trip activities, including the field trip lab sheet and post-trip lesson(s) 2. Conduct a curriculum related field trip

OBJECTIVES	ACTIVITIES	EVALUATIONS
To conduct one science curriculum related field trip (continued)	3. Prepare pre-trip class orientation lesson, field trip lab sheets, and post-trip activities 4. Make all arrangements for the field trip 5. Evaluate the process and the field trip experience as it relates to the grade level curriculum	

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PROFESSIONAL IMPROVEMENT PLANS

CATEGORY #6 - CAREER EDUCATION

OBJECTIVES	ACTIVITIES	EVALUATIONS
To develop in each student an awareness and an understanding of career opportunities in various chemistry-related industries	1. Use audio-visual materials which emphasize chemistry-related careers in classroom activities 2. Students will research career opportunities in magazines, newspapers, and other publications 3. Students will make a list of chemistry-related careers and the educational requirements to enter that career 4. Prepare a series of bulletin board displays which depict various jobs in the chemical industry	1. Teacher prepared questions on a written test 2. Teacher evaluation of thoroughness and appropriatness of in class discussions
To introduce students to the various careers in science	1. Teaching a career-oriented unit in biology (Biology and You) and in chemistry (Chemistry in the Real World) 2. Guest speakers will be invited to discuss various career possibilities 3. Selected AV materials which illustrate possible science careers 4. Reports on biology and chemistry careers 5. Constructing a "Careers" bulletin board	1. Evaluation of the "Career Units" in biology and chemistry 2. Feedback, both verbal and written, on guest speakers and AV material 3. Continual evaluation of homework, reports and class participation on the subject of careers
To develop specific objectives and instructional activities' options for each science course with emphasis on career education	1. Collect data on current curriculum and instructional activities 2. Write objectives, or enhance present objectives where appropriate 3. Develop or delineate basic level instructional activities appropriate to each objective 4. Visit the New Jersey Occupational Resource Center in Edison, New Jersey	Assemble and disseminate a curriculum booklet describing the present science program with respect to instructional objectives and basic-level instructional activities

OBJECTIVES	ACTIVITIES	EVALUATIONS
To make students aware of career opportunities related to physics in particular, and science in general	1. Provide information and literature related to careers in science 2. Provide assistance in the preparation of science projects 3. Provide opportunities for trips in the health science area, i.e., health career clubs and trips	1. Discussion with students related to above opportunities 2. Written reports related to above
To develop strategies for increasing the scope of activities in career education offered to students in science	1. Research available materials pertaining to various science-related careers 2. Make available, through preview or purchase, audio-visual materials for teacher or student use 3. Assemble and review all science course career objectives and activities 4. Participate in building level career awareness activities 5. Visit the N.J. Occupational Resource Center in Edison, New Jersey	1. Keep a log of activities and a file of materials researched, developed or selected for classroom use 2. Incorporation of strategies into lesson plans
To introduce students to the various careers possible in biology and chemistry	1. Surveys listing known careers in bio/chem given during the first and fourth marking periods 2. Select AV materials which illustrate possible bio/chem careers 3. Guest speakers will be invited to discuss various careers in bio/chem 4. Questions (in class, for homework, and on tests) on different careers in bio/chem 5. Reports on bio/chem careers 6. Constructing a "Careers Bulletin Board" made of materials brought in by students	1. Comparison of the two surveys to determine if there has been an increase in the number of known careers by the students 2. Continual evaluation of homework, class participation (including the bulletin board), reports and tests to determine the extent of student understanding of bio/chem careers
To enhance career awareness in IPS curriculum	1. Assign various career reports as extended homework assignments 2. Show assorted media to students with relevant questions to be completed for a grade 3. Conduct field trip(s) with the IPS classes (if available) to a working lab such as Organon, Sandoz, etc.	1. Discussion with science supervisor 2. Grading system set up for all written work by students

OBJECTIVES	ACTIVITIES	EVALUATIONS
To expand the use of career education information in the curriculum	1. Working cooperatively with the Guidance Department resource speakers and field trips will be set up related to various curriculum areas 2. Resource materials for occupations related to specific subject areas will be obtained and circulated to teachers and counselors 3. The staff will be encouraged through individual conferences to incorporate career education information in their lesson presentations	
To continue to have students realize and investigate the various career opportunities and develop career awareness in the sciences	1. Making students aware of career opportunities by directing them towards science specials on television and discussing the topics and careers in class 2. Audio-visual materials and presentations which relate science in today's world, especially industry, and the careers involved in the presentation 3. Student research/oral reports on various career fields in the sciences 4. Discussed of current event topics which deal with the sciences and different career fields in science 5. When appropriate, field trips to various places where science careers are involved	1. Evaluation of student written/oral reports dealing with the career fields in the sciences 2. Demonstration of knowledge of various science career requirements on written exams 3. Administration of a career awareness survey to be completed at various times throughout the year
To modify the existing science career club into a school-wide interdisciplinary career club	1. Open membership to above club to all 9th grade students 2. Recruit active help/participation from faculty members from all subject areas 3. Use the faculty members, as well as administrative and community resources, to set up a series of: a) trips, b) speakers, c) films related to certain careers 4. Keep district career education program informed of progress	1. Faculty response to the idea 2. Analysis of student response 3. Analysis of questionnaire sent to all participants 4. Inception of an interdisciplinary career club

OBJECTIVES	ACTIVITIES	EVALUATIONS
To use strategies that will develop career awareness in science	1. Once a month, the California Learning Simulations game will be utilized in class 2. Field trips to appropriate areas in the community such as labs, manufacturing sites, etc. 3. A file will be kept of career information for class use with a computer log to measure extent of student use	1. The student file will be evaluated for completeness and extent of use 2. Career reports handed in will be evaluated and graded 3. Field trips will be evaluated for effectiveness

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CATEGORY #7 - STUDY SKILLS

OBJECTIVES	ACTIVITIES	EVALUATIONS
To study possible ways to coordinate scientific principles with literature so that student interest and learning in both science and reading may be enhanced	1. Consult with fellow science and reading staff, librarian and district science supervisor for input and to generate workable ideas 2. Attend N.J. Science Convention to research possible related ongoing ideas 3. Consult English staff on scientific aspects of required readings 4. Consult annotated bibliographies created by professional education groups such as National Council of Teachers of English for related science readings	1. On an informal basis, relate input from mentioned sources to the principal and supervisor of science 2. Development of an outline suggesting ways to coordinate scientific principals with literature
To develop and implement strategies to enhance the writing abilities of science students by conducting preliminary discussions of scientific words, identification by key science words, and to organize ideas for the students prior to their submittal of written reports	1. Involve a member of the English staff at the school to utilize student laboratory write-ups in an English class 2. Discuss the guides and procedures to be utilized with science classes prior to having students work on laboratory written material 3. Review some common errors made by students and provide suggestions as to how students may improve upon their written reports	1. A member of the English staff will document appropriate information 2. Maintain a sample file for a typical class as a comparative study of results achieved by students 3. Consult with principal and/or supervisor for an appropriate observation
To continue to assist the advanced science students in developing more effective scientific research and study skills in AP Biology	1. Lab activities and write-ups shall be prepared according to appropriate scientific format 2. To provide specific techniques that prepare the student for test taking, specifically the AP Biology Exam 3. To assign additional readings of scientific literature and have students prepare abstracts of assigned topics 4. To present unit vocabulary to develop and expand scientific literacy	1. Teacher observation 2. Comparison of AP scores (Unit Test) with past years to determine and evaluate level of student performance 3. Evaluation of abstracts 4. Evaluation of scientific terminology via quizzes and exams

OBJECTIVES	ACTIVITIES	EVALUATIONS
To continue to stress reading and vocabulary skills in science	1. Provide vocabulary lists before each unit to be defined and used as progress in that unit 2. Emphasize root words, prefixes, and suffixes as a means of attacking words, i.e. Latin and Greek roots frequently used in science such as "geo" for earth "aqua" for water, etc. 3. Refrain from giving information but rather stimulate and encourage the student to seek and discover through reading research and independent attack 4. Stress the need for improved vocabulary as an aid to improving and clarifying writing by developing skills necessary to use a Thesaurus and dictionary 5. Have students keep folder of their work 6. Teach students to look for key words to assist in getting the main idea when reading for content 7. Use teacher-made cross-word puzzles and other types of word games 8. Coordinate with the reading teacher the development of activities to improve skills	1. Evaluate test results and vocabulary quizzes 2. Observe performance in class 3. Collect notebooks and evaluate reports and all assignments 4. Evaluate folders for progress through out the year 5. Hold vocabulary "bees" and record the results 6. Organize lessons and quizzes to determine whether or not reading for content has improved 7. Evaluate the student's success in completing puzzles and quizzes
To develop a program for improving student's study habits	1. Require a physics notebook which will be checked and graded, making suggestions for improvement where needed 2. Periodic review and suggestions for better study habits as they relate to current assignments 3. Developing weekly organized quizzes focusing on student's review of the previous week's work 4. Improve the physics laboratory write-up format	1. Evaluation will be accomplished by demonstrating improved lab work, notebooks being more organized and complete than in previous years, and in improved test and quiz scores
To infuse communication skills into the science curricula	1. Offer students opportunities to express themselves through the written word adhering to the rules of grammar 2. Develop better oral communication skills reports 3. Develop critical thinking by constantly reinforcing logic and reasoning through questioning techniques	1. Examine ninth grade reading results 2. Students reports will be graded 3. Compare students' notebooks from last year

OBJECTIVES	ACTIVITIES	EVALUATIONS
To emphasize the teaching of communication skills as related to science	1. Directed reading activities 2. Answers to questions are to be written in complete sentences 3. Written and oral reports during each marking period 4. Homework assignments - one page essay on weekly topics 5. Developing listening skills	1. Written results 2. Teacher observation 3. Incorporation of strategies into lesson plans
To develop in students a better command of oral and written skills in order to improve poise, literacy and logical presentation of ideas	1. Provide opportunity for at least two oral reports per student during the course of the year 2. Provide opportunity for one original writing per year 3. Use film and filmstrips to develop creative skills and critiquing skills 4. Help students to state ideas clearly 5. Stress need for improved vocabulary as an aid to improving and clarifying writing by developing dictionary and Thesaurus skills 6. Encourage students to answer questions in a manner that all can hear and understand	1. Teacher evaluation of written and oral reports 2. Teacher evaluation of student interest and participation in critiquing activities 3. Organize lessons and quizzes to determine whether vocabulary skills have improved 4. Teacher evaluation of progress achieved in improving oral skills 5. Share reports with the student's English teacher
To assist the student in the development of effective work and study habits in an attempt to prepare the student for test taking, both classroom and standardized	1. Review of subject matter with stress toward taking a full year comprehensive exam in biology and AP Biology 2. Teacher made tests to be designed with variety of subjective and objective sections 3. Follow-up review of all tests taken 4. To present unit vocabulary to develop and expand scientific literacy 5. To encourage note-taking and their use in preparation for test taking 6. Periodically request short reports of additional reading of material provided or reports of relevant TV specials such as Jacques Cousteau, The Body Human, Nova, etc. 7. Field studies in biology in the areas of: a) N.J. forests and trees b) Fauna Habitati (local) c) Marine and Estraine ecology	1. Evaluation of scientific terminology via quizzes and tests 2. Follow-up of test scores and comparison to past student's performance 3. Teacher observations

OBJECTIVES	ACTIVITIES	EVALUATIONS
To provide additional help to individuals or small groups of students whose performance indicates potential failure	1. Identify students having difficulty meeting course objectives 2. Identify the areas of weakness of each of these students 3. Schedule mutually agreeable times with these students to provide extra help 4. Record date and time each student was provided help 5. Record students who do not keep appointments 6. Notify parents of students who do not keep appointments Resources: a) Guidance Records; b) Student Grades	1. Log of students helped and strategies used 2. Log of students who did not keep appointments. Indicate when parent(s) were contacted 3. Record of improvement in student performance
To assist the student in the development of more effective work and study habits	1. Review of subject matter with stress towards taking a full year comprehensive exam in biology such as the Biology Achievement Exam 2. Lab activities and write-ups to be prepared in appropriate scientific format 3. Periodically request short reports of additional readings of materials. Provided or written reports of relevant TV specials such as "Nova" and "The Body Human"	1. Observation and analysis of student performance on lab reports and special assignments 2. Follow-up review of test scores and comparison to previous years
To have students become more accountable for their performance in class	1. Periodic conferences with students to evaluate progress 2. Follow-up seminars during lunch and after school 3. Parental contact through telephone calls and progress reports	1. Comparative analysis of student performance before and after conferences 2. In-school conferences with parents to determine student study habits at home
To incorporate more technical writing skills into the Bio-tech program	1. Develop essay questions for tests 2. Stress student preparation of formal conclusions on all lab reports 3. Have students write summaries of science-related current event articles 4. Have students write interpretations of scientific articles	1. Observe improved writing skills in students 2. Comparison of tech-writing strategies in last year's lesson plans

OBJECTIVES	ACTIVITIES	EVALUATIONS
To develop an awareness of graphing strategies for science students, relate these strategies to hands-on laboratory experiences, and enhance the students' awareness of the application of graphs in science and reading	1. Enlist the aid of a math teacher, science teacher, and librarian to locate suitable information on graphing 2. Develop a unit on graphing to be implemented with the students using a variety of visual aids (overhead projector, teacher prepared ditto, and pre and post graphing tests 3. Solicit input from science supervisor	1. Maintain a teacher folder of student results which includes but is not limited to: a) pre and post tests given and results b) overhead projector materials c) teacher prepared dittoes d) other sample materials developed by students using their laboratory experiments 2. Call upon the supervisor or principal to observe a lesson graphing 3. Completion of graphing unit

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PROFESSIONAL IMPROVEMENT PLANS

CATEGORY #8 - FACILITIES

OBJECTIVES	ACTIVITIES	EVALUATIONS
To reorganize classroom laboratory materials to make equipment readily available to all laboratory students	1. Organize lab drawers and inventory materials contained within 2. Discard old and broken equipment and materials 3. Label all stockroom storage areas to avail materials to all teachers using the room	1. Physical appearance of room 2. Formal inventory

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CATEGORY #9 - RESOURCES

OBJECTIVES	ACTIVITIES	EVALUATIONS
Review science materials in the school library, science department, and district media department	1. Devote at least 2 periods per month (for as long as is needed) to complete the review 2. Note areas of strengths and weaknesses 3. Preview new materials for possible purchase	1. Provide department with updated list of available holdings 2. Provide evaluative comments on AVA available 3. Recommend purchase in areas of weaknesses
To improve utilization ofthe microscope slide collection for biology	1. Reorganize and inventory slides 2. Arrange into categories 3. Identify as to scientific and common name 4. Organize into a central area for common usage 5. Determine additional needs to complete slide sets and/or add to the collection 6. Type up list of available slides, duplicate, and distribute to staff	More productive use of the microscope slides by staff
To develop a media-retrieval and inventory system and to place it in the computer	1. Review current holdings of and consolidate into one booklet 2. Remove outdated and/or damaged materials 3. Determine areas of strengths and weaknesses 4. Preview materials in areas of weaknesses 5. Prepare purchase orders for materials needed and set priorities for ordering 6. Arrange all available materials according to format and topic 7. Cross reference with science curriculum 8. Use DFU (Data File Utility) to enter all information into the computer 9. Prepare instruction booklet for staff for how to obtain a print-out of materials needed	1. Increased staff awareness of media available for each topic 2. Print-outs available for continual staff review for update 3. More effective use of AV materials by the science staff 4. Completion of computer inventory system 5. Publication of instruction booklet

OBJECTIVES	ACTIVITIES	EVALUATIONS
To continue to correlate the inventory of chemicals, supplies, and equipment to the science programs at the junior high school	1. To update and alphabetize the general chemical stockroom 2. To categorize materials and equipment of the four science rooms into modular units to be used by the students and staff 3. To produce in writing an index card file for each unit for the department	1. Self-assessment of the ease of use of the inventoried and categorized materials by the staff (log use, etc.) 2. To produce for each member of the science staff an index card filing system for comment on reaction to and improvement
To continue to correlate the inventory of supplies and equipment to the science program	1. Alphabetically file new chemicals in the stockroom 2. Categorize equipment into modular units with annotations on the trays in which the equipment is stored. Annotations will indicate which lab applies to the equipment and supplies present 3. Write and maintain an index card guide to locations of supplies in the room	1. Self-evaluation of the ease of lab preparation and time saved 2. Submit index card catalog to colleagues for comment
To serve the needs of the biology program by beginning to organize biological equipment	1. Rearrange classroom to create more open space 2. Unify and categorize the various biological equipment into trays or cabinets 3. Label all cabinets 4. Make an inventory list of all biological equipment	1. Comments by fellow staff members on room improvements 2. Use of inventory lists by co-workers and substitutes 3. Organized room, where equipment can be found by everyone
To develop student scientific self-awareness in today's world by using media reports	1. Students will read outside materials and select one or two articles every month relating to the subject area being taught or general areas of science and career related areas 2. The teacher will inform students of any science programs on TV. The students may elect to view the program and write a summary and reaction to the program. These students will then share this information with the class and receive extra credit for it 3. Time will be set aside periodically for students to discuss their selections of articles to the class 4. A discussion of the facts presented will follow each discussion session	1. Teacher's evaluation of the presentation based on the information presented to the class 2. Success of the discussion session and interest the students express by their reaction to the articles 3. Number of voluntary presentations per class

OBJECTIVES	ACTIVITIES	EVALUATIONS
To continue to expand teaching techniques by making use of varied multi-media materials and activities both in and out of the school	1. To enhance instruction through use of 16mm films from IMC 2. To enhance instruction through use of filmstrips from IMC 3. To convert portions of labs and lecture materials to overhead transparencies 4. To use of videotape to utilize the value of commercial television programs in biology 5. To use AV techniques to enhance students' Science Fair and mini-grant projects	1. Completed transparencies and video tapes 2. Feedback from students as to whether the above activities simplify and encourage learning 3. Student work which will be kept and displayed
To organize stockroom, preparation room, and classroom materials in order to facilitate using them safely to their fullest potential	1. Inventory all hardware and glassware contained in student drawers 2. Inventory all chemicals in storeroom 3. Organize storeroom, separating chemicals that are incompatible 4. Organize individual student laboratory stations for maximum efficiency and safety 5. Set-up a prepared solution section in the chemistry storeroom	Inspection and check of inventory lists to be performed mid-year and end of year
To expand the use of the school's educational media opportunities in the biology classroom	1. Utilize and expand on the extensive resources already compiled by the science department 2. Incorporate solo learn units as part of the classroom activities and/or as a teaching aid for students absent from class work 3. Make use of the central film library 4. Have students research materials in the library through the use of microfilm readers, etc.	1. Student evaluation form at the end of the school year 2. Collect and grade reports from the students' research projects
To develop an appropriate set of supplementary readings for the use of students in Advanced Biology	1. Survey scientific journals of appropriate sophistication for relevant 2. Arrange for duplication and collating of suitable articles into class sets	1. Increase of student awareness of recent and relevant work in the field of biology 2. Publication of supplementary readings and incorporation into lesson plans

OBJECTIVES	ACTIVITIES	EVALUATIONS
To make the science supplies more readily available in each room to students and staff	The two chemistry labs will be organized differently on an experimental basis: 1. Classroom A will have frequently used supplies organized in alphabetical order 2. Classroom B will be arranged in "unit packs" that is: a select group of frequently used supplies available to each student at each lab station	1. At the end of the school year, students and staff will be polled regarding their views of the operation of labs. The system which proves most popular will be adopted
To organize and catalog the biology specimens in the Biology Department Museum	1. Organize specimens 2. Discard those in poor condition 3. Catalog specimens 4. Type, reproduce and collate catalog 5. Distribute to all biology teachers	1. To have biology teachers using the catalog to facilitate lesson planning 2. Completed catalog of specimens
To develop a notebook with detailed organization of the concepts covered in the Biology and Earth Science courses	1. Compile all available audio-visual resources and list for each topic 2. Prepare and/or collect worksheets for each topic 3. Provide descriptions and procedures of applicable laboratory experiences 4. Compile quizzes 5. Provide tests	Completion of notebook
To research available audio-visual aids which compliment the biology program	1. Develop worksheets to assist student understanding of filmstrips 2. Review all available audio-visual materials for biology 3. Select the appropriate materials and list 4. Provide worksheets or guides as needed	1. Students should be able to work more independently with the AV materials thus providing greater individualization 2. List of audio-visual materials which compliment the biology program
To develop a sound/cassette series to compliment the special biology classes to serve as an aid for students with reading difficulties	Prepare unit cassettes based on readings from the program text. Tapes will include not only readings but also explanations and definitions of terms and concepts	1. Cassettes to be completed by the end of the school year 2. Students will show a better understanding of assigned work

OBJECTIVES	ACTIVITIES	EVALUATIONS
To review the present audio-visual materials, preview new materials and make recommendations for purchase of appropriate AV for the Earth Science program	1. Obtain a list of present materials and review 2. Recommend removal of outdated material 3. Examine catalogs and flyers 4. Use Educator's Progress Service Guide to free science materials and order appropriate materials 5. Request materials for preview 6. Preview 7. Make recommendations	1. Greater student interest and understanding of the Earth Sciences 2. Log of reviewed materials with recommendations
To compile a chronological file of laboratory exercises for the Bio-tech course	1. Compile all suitable labs from classroom text 2. Research other sources for suitable labs 3. Review each laboratory experience and include a key for the expected results, notations of possible difficulties, suggestions for improvement and safety notes	Completion of chronological file
To make permanent color video-tapes of various important demonstrations used to illustrate major concepts in the chemistry curriculum	1. Prepare a preliminary list of demonstrations to be 2. Review with staff and determine priorities 3. Experiment with a few demonstrations and critique 4. Tape the selected demonstrations 5. Catalog and list for staff and possible use by substitutes	Completed set of cataloged video tapes
To expand the "hands-on" learning situations provided for 8th and 9th grade science students	1. Expand/improve upon the "research station" contained in one area of room 2. Require one activity per student (or work group) per marking period 3. Showcase extraordinary work through mini-grants and/or the district Science Fair	1. Teacher evaluation of the above system 2. Monitor student progress with log books for lab activities 3. Evaluate student reaction to the above 4. Keep track of completed projects
Develop improved opportunities for dealing with talented and gifted students in the regular classroom	1. Having already completed "Introduction to the Talented and Gifted" at Monmouth College, continuing course work by taking "Working with the Talented and Gifted in the Regular Classroom" 2. Attend workshop "Science for Gifted and Talented Students" at the N.J. Science Convention in October 3. Encouraging Science Fair projects by the students	1. Self-evaluation and discussion with the director 2. Successful completion of students' Science Fair projects

OBJECTIVES	ACTIVITIES	EVALUATIONS
To concentrate on incorporating laboratory activities which are designed to reinforce that science is a process of discovery	Activities will be structured so as to enable students to solve problems, to make discoveries and more generally to think critically about science. Also field trips and research projects will be initiated. (Independent research projects for Science Fair)	Comparison of last year's lab reports and this year's results. Number of students who participate in the Science Fair
To have students learn the materials in Project Physics Program through a variety of related activities	1. Use of a directed reading program using a list of key questions 2. Graphs, laboratory exercises and other suitable activities will relate to readings whenever feasible 3. Tests and evaluative tools will focus on major concepts and conceptual schemes	1. Quizzes and tests as indicated 2. Student performance during oral discussion
To provide opportunities for the accelerated student to pursue the study of chemistry beyond the curriculum limits	1. Assign a research paper 2. Incorporate "mini-units" into course outline (i.e., Geochemistry unit, advanced quantum mechanics) 3. To identify and encourage potential Science League participants 4. Encourage participation in Science Fair	1. Student interest in class material 2. Student evaluation of Science Fair
To continue to improve the instructional environment of the biology room	1. Keep bulletin boards current and interesting. Careers in biology as well as current events and bio-photography will be highlighted 2. Improve lab program efficiency by keeping lab tables, storage areas, and sinks clean and/or organized	1. Feedback from administration, teachers, and students 2. Teacher observation of student participation in the career awareness rpogram as well as any enrichment activities that are promoted
To further develop activities which are effective in providing for the individual differences of students in the study of science	1. Homework assignments of a nature which individual strengths of a student can be applied: a) oral reports on topics in science b) class discussion on topics in science c) creative writing/drawing assignments dealing with topics in science 2. Class activity where students create a slogan of something in science to put on their T-shirt and then to explain to the class the meaning of the slogan 3. Encouraging extra credit reports, library work 4. Three dimensional science projects 5. Science Fair participation	1. Subjective and objective evaluation of student written and oral reports, and in class discussion evaluation. Creative writing/drawing assignments will be evaluated on creativity and originality as well as accuracy of content 2. Evaluation of the quality of extra credit student reports, library work, etc. on the nature of the assignment and the quality in which it was presented 3. Participation in Science Fair

OBJECTIVES	ACTIVITIES	EVALUATIONS
To adapt chemistry to the lower ability student, as developed during a summer workshop and through personal experience	1. Utilize the workshop units developed in a summer proggram 2. Expand the learning packages developed in the workshop as class needs dictate	1. Evaluation of homework, class participation, and unit tests to obtain an assessment of the extent of student participation, and understanding 2. Comparison of student performance on newly developed final examination with past results
To improve the teaching of abstract concepts by using models, examples and analogies	1. For each unit of study in the chemistry curriculum, provide specific concrete models, examples or analogies with lesson plans at appropriate times within the unit. Use a red pen or other device to place emphasis on this approach 2. Additional analogies, models and examples will be provided by the supervisor on the plans or in conferences for specific concepts with each unit of study 3. Science books and journals in the professional library and the "Journal of Chemical Education" will assist in providing specific examples for various concepts 4. Conferences with other chemistry teachers on each unit of study are suggested as a method for sharing information. A workshop day shall be devoted to the topic	1. The teacher should keep a record of the many concrete examples, analogies, etc. used in each unit; a record of conferences on this topic with other teachers shall be kept 2. The supervisor will note the inclusion of this data in lesson plans submitted on alternate Mondays 3. The teacher will demonstrate a set of folders for each unit within the chemistry curriculum with the variety of new models, examples, analogies, etc. available for future use
To provide the honors chemistry students with the opportunity to use the computer to solve problems in the more mathematical areas of chemistry	1. Making program tapes of selected topics 2. Instructing the students in the use of the computer 3. Scheduling computer time for them to complete the work in each program provided 4. Evaluating students on their skill in completing the assigned programs	1. Successful computer programs in chemistry stoichiometry and Raoult's Law will be written 2. Home students will be instructed in the use of the computer and will be given the opportunity to use it 3. Students will be provided a computer printout of the correct results of their individual lab data-based calculations 4. Evaluations of honors students will be completed based on their ability to complete assigned computer problems

OBJECTIVES	ACTIVITIES	EVALUATIONS
To learn to become effective in using the laboratory approach in teaching science	1. To become familiar with the lab equipment 2. To teach the students the proper and safe techniques in the use of lab equipment 3. To teach the students the use of the scientific method in their daily lives as well as in the lab 4. To develop skills in scientific measurement and in the collection of scientific date 5. To develop the skill of taking useful notes 6. To develop the skill of writing effective lab reports 7. To provide a wide variety of lab experiences	1. Results of students' tests 2. Continual observation of homework, class participation, and lab reports to obtain an on-going assessment of the extent of student understanding 3. Observation and discussion with the principal, assistant principal and the director of science
To improve the ability to effectively use the 35mm slide collection as an instructional tool and resource in teaching Earth Science	1. Review, sort and catalog the slides presently available 2. Assemble slide programs on various Earth Science topics 3. Reproduce slides that are the personal property of faculty members to make them part of the permanent school collection 4. Have the slide programs catalogued as part of the permanent school AV collection	Completed catalog of 35mm slides
To individualize the science program through the strategy of a learning center	1. Conduct a search of available references and resources 2. Meet with science supervisor to select an appropriate unit and appropriate activities 3. Construct at least one learning center per science unit during last half of evaluation period 4. Evaluate effectiveness of learning centers	Completion of at least one learning center

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PROFESSIONAL IMPROVEMENT PLANS

OBJECTIVES	ACTIVITIES	EVALUATIONS
To coordinate teaching efforts in chemistry with curriculum guide requirements	1. In September present a listing of all units in chemistry course of study with days allotted to each unit recommended by course of study vs actual plan of allotment for your specific course 2. Keep a record of date of start and stop for each unit and the actual number of days used 3. Read the objectives associated with each unit of study in the course guide and prepare your tests for each unit based on the objectives 4. Present tests on each unit along with lesson plans on alternate Mondays. Include a tally of objectives listed in course of study with test items 5. Visit and discuss chemistry course with three other teachers of chemistry in an effort to share information for uniformity and emphasis in teaching. Time will be made available in a workshop for this effort 6. Confer with department chairperson on a regular basis to assist accomplishment of goals and the completion of course of study by June	1. Supervisor will read lesson plans, tests and time allocations on alternate Mondays to assess progress and make recommendations if necessary 2. Teacher shall keep a record of all conference meetings with other teachers 3. The tests shall carefully reflect each unit objectives as per tally sheet 4. The curriculum shall be completed by June 15
To present a program of demonstrations in chemistry to a number of elementary school classes	1. Review the elementary school science curriculum 2. Meet with the elementary classroom teachers prior to the program to discuss: a) characteristics of the students b) focus of the program c) safety concerns and equipment needed 3. Preparation of a program overview sheet and follow-up activity ideas contained in a lesson guide 4. Critique the lesson with the teacher	1. Completion of a lesson guide 2. Completion of the programs 3. Critique of the demonstration lessons

OBJECTIVES	ACTIVITIES	EVALUATIONS
To use more strategies which involve students in developing higher level thinking skills	1. Review Bloom's Taxonomy 2. Design a series of lessons which place a greater emphasis on higher level skills	Teach at least 3 lessons and critique each with the science supervisor
To incorporate supplemental materials for Project Physics course	1. Directed reading assignments and use of key questions 2. Thorough discussion of assignments 3. Use of graphs, labs, video tapes and other suitable activities	1. Quizzes and tests 2. Comparison with past performance of other students
To further individualize the science curriculum by implementing the alternative science program developed during the summer workshop	1. Discuss the concerns of the resource room and self-contained classroom students with their teachers in order to integrate these concerns into the science program 2. Implement the concepts and materials of the summer workshop into the science curriculum 3. Use a variety of teaching techniques from the workshop to meet the needs of the students such as using supplementary texts that parallel the science texts, allow students to take tests and quizzes in the resource room or self-contained classroom, retain science folders of the students so they are readily available for students to use in class and review by teachers 4. Share the program developed during the workshop with the rest of the faculty	1. Teacher observation of student progress 2. Follow-up discussions with the teachers in the resource room and self-contained classroom regarding the progress of the students
To use a self-assessment approach to improve methods of teaching science to 9th graders	1. Take the science teachers self-assessment inventory 2. Employ a variety of clinical instruments to review classroom teaching methods	1. Discuss the results of the above activities with the system science director 2. Evaluate the plan, drawn up by the teacher and the director, to implement a teaching strategy for the school year

NEW JERSEY SCIENCE SUPERVISORS ASSOCIATION

PROFESSIONAL IMPROVEMENT PLANS

OBJECTIVES	ACTIVITIES	EVALUATIONS
To become aware of improved safety and storage procedures in the classroom and the chemical storage room. (This procedure will be related and designed to be utilized by students in laboratory situations)	1. Complete written and oral notification of procedures to students prior to lab activity 2. Complete organization and safety techniques in the chemical storage room 3. Continued research in chemical reactivity and health hazards of chemical compounds used by students	1. Distribution to all chemistry students a chart describing the safety and hazard code placed on stock bottles of chemicals and the meaning of the code 2. Chemical storage room completely inventoried and organized to allow chemicals to be readily accessible for authorized personnel 3. Dissemination of complete safety information from state and federal authorities to staff and students 4. Development of a computer program on each chemical that includes the safety code, quantities available, company code and bid price
To improve knowledge of current information about laboratory safety procedures and techniques in the sciences, and emphasize safety in the classroom	1. Read books and pamphlets available on safety procedures and techniques 2. Review current periodical literature on safety in science laboratories 3. Demonstrate the use of safety equipment in the laboratories 4. Show the students a laboratory safety film 5. Review, and possibly revise, laboratory safety requirements for chemistry students	1. List of books and articles on safety 2. Demonstration of safety equipment in the laboratories during the year 3. The showing of safety films 4. The review of chemistry safety regulations

NEW JERSEY SCIENCE SUPERVISORS ASSOCIATION

PROFESSIONAL IMPROVEMENT PLANS

OBJECTIVES	ACTIVITIES	EVALUATIONS
To encourage the use of video taping in the science classroom (by students and staff)	1. Have students tape some labs: a) decide with students which labs b) write a script c) try out lab activity d) tape the lab 2. Use this technique to tape the labs for evaluation by the state monitors that is: the mole concept, chemical kinetics, and organic synthesis	1. Results of student presentations 2. Use of tapes by staff and students
To conduct a self-evaluation of each science teacher	1. Meet with staff and discuss the need for performing the evaluation 2. Employ the self-evaluation instrument 3. Discuss the results with the staff	1. Evaluate the self-esteem of the teachers involved 2. Develop several ways to improve each person's performance
To develop a program for the utilization of the computer as a teaching aid in the science classroom	1. Conduct a review of the courses of study in biology, chemistry and the junior high to determine which units lend themselves to computer software 2. Review the literature on computer software from a variety of sources such as curriculum and computer journals and manufacturer catalogs 3. Preview available software using a criteria appropriate for science 4. Utilize existing software in classes 5. Consult other science departments as to what they are using 6. Make budget recommendations for 1983-1984	1. List of software according to subject area 2. Present a January workshop using all available materials 3. Purchase software after reviews 4. Observation of the computer being used in classes

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OBJECTIVES	ACTIVITIES	EVALUATIONS
To evaluate the pretesting-posttesting program in all science courses in order to establish indicators of pupil progress	1. Pupils will be evaluated upon entering and again upon completing each science course 2. Data will be compiled for each course and comparisons will be made with national norms, previous local norms and final semester grades 3. Local pretesting norms will be evaluated for possible use in assisting with ability level placement of new students	1. Comparisons will be made with national norms of the pretesting results 2. Comparisons will be made with previous local norms by the end of the 1st semester 3. Comparisons will be made with final semester grades 4. Summary evaluations for possible use in assisting with ability level placement will be made
To computerize the science textbook inventory	1. A computer program will be written to inventory textbooks 2. The program will include book title, author, publisher's address, current price 3. Current data will continually be entered on the computer	1. The program will be designed to provide easy access to revise the inventory based on: a) new purchases and b) end of the year losses 2. Completed science textbook inventory program
To participate in the formation, adoption, and communication of student proficiencies related to assigned courses of instruction required for graduation	1. Development of proficiencies - identify those most most appropriate to courses of instruction assigned and to communicate to students involved 2. Preparation of a course of study guide 3. Develop a chapter by chapter file 4. Coordinate laboratory requests between staff and technician 5. Develop schedule/time line for the year 6. Coordinate media 7. Work with media center coordianting projects 8. Conduct department meeting to share the information	1. Completion of a course of study guide 2. Completion of meeting(s) to inform staff
To develop minimum proficiency requirements for Biology A, Biology B, Biology C and Biology C Special courses	1. Course objectives will be reviewed and minimun proficiency standards will be established for each course 2. Meetings will be held with teachers of each course through December-April to discuss and write minimum standards 3. Course objectives and minimum standards will be typed and duplicated for distribution to students	1. Completion of minimum proficiency standards for the courses 2. Distribution of the standards to students

OBJECTIVES	ACTIVITIES	EVALUATIONS
To gain a higher degree of personal computer literacy and contribute to implementation plans as they may relate to the science program K-8	1. Participate in at least one extensive staff development activity which will give more in-depth knowledge about use of microcomputers 2. Read appropriate related literature on computer literacy in general and how it applies to science programs 3. Provide input to participate in development of computer literacy curriculum 4. Facilitate participation in at least one extensive staff development (visitation) experience in computer literacy	1. Completion of a least 10 hours of instruction in computer literacy and its application to the science curriculum 2. Maintain a log of computer related articles to the science curriculum 3. Maintain active membership in the district computer literacy committee
To adopt and incorporate the applicable policies and procedures of the Occupational Safety and Health Act in the science-technical areas	1. Meetings will be held with federal and state officials from the State Department of Education and OSHA offices to determine all policies and procedures which relate to the RHS science technical areas. Current practices will be evaluated with regard to applicable areas 2. Recommended policies will be written to cover procedures and practices for compliance with the Occupational Safety and Health Act	1. Written procedures and practices manual
To encourage teachers to use the video tape equipment for self-evaluation of teaching methods and skills	Use of video tape equipment for self-evaluation will be scheduled with the district media supervisor	Brief reports will be requested from teachers using this procedure as to the value, advantages and disadvantages of this media
To increase student and teacher use of the Instructional Media Center	1. Teachers will be encouraged to have students use the audio visual materials related to their curriculum at the study carrels in the IMC 2. Teachers will encourage students to use the library resources for special reports on historical anecdotes, and career education information, and research reports related to the curriculum 3. Teachers will be encouraged to use unassigned periods to work with students who need extra help in the IMC	

OBJECTIVES	ACTIVITIES	EVALUATIONS
To expand the computer science program to support the use of the computers by teachers and students in the other subject areas	1. A series of inservice workshops will be held to train teachers in various subject areas to program and operate the computer units. Computer programs in business, social studies, physics, chemistry, earth science, biology, and guidance will be developed and placed in storage in the computer for student use	
To work with the Citizens' Advisory Committee, administration, staff and student body to standardize the policies and practices of presenting student awards to resolve any inequities of the current procedures	1. Current practices have been evaluated and recommendations have been made by the school administration. The citizens' committee is studying the recommendations. Upon approval of recommended policies by the Board of Education, meetings will be held with activity sponsors and department leaders to establish standards for awards	